Hand evaluation
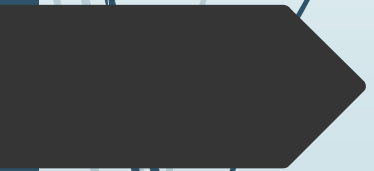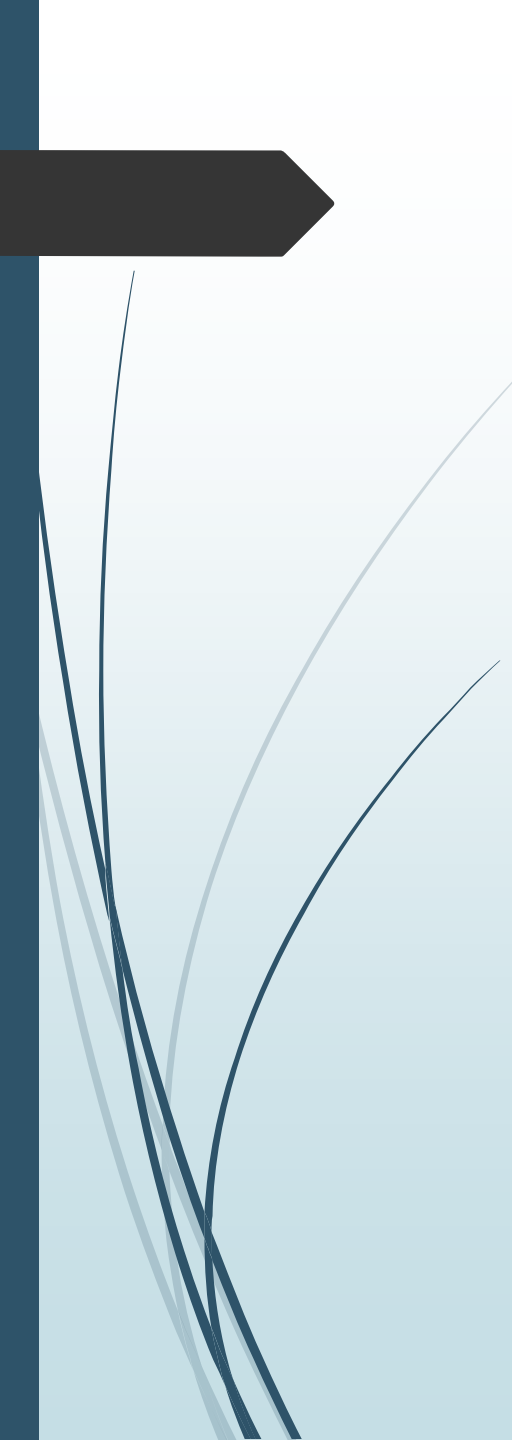
On observation

- Anterior and posterior aspects of forearm, wrist and hand

- Attitude of joints

- Is there loss of normal attitude(more increase in flexion from radial to ulnar side)

- Bone and soft tissue contours

MUSCLE ENERGY TECHNIQUE

❏ Also called as ACTIVE MUSCULAR RELAXATION

TECHNIQUE

❏ It mainly targets soft tissues

Basics of Biomechanics

- **Definition of biomechanics:**

The study of mechanical laws relating to the movement or structure of living organisms

- How the body functions and moves
- Why the body functions and moves the way it does

Force

Force: is that which alters the state of rest of a body or its uniform motion in a straight line.

Application of a force

1. Direction of force

2. Magnitude of force

Therapeutic Gym Equipments

Finger ladder

Shoulder flexion

Shoulder abduction

Goniometry

- Gonia: angle

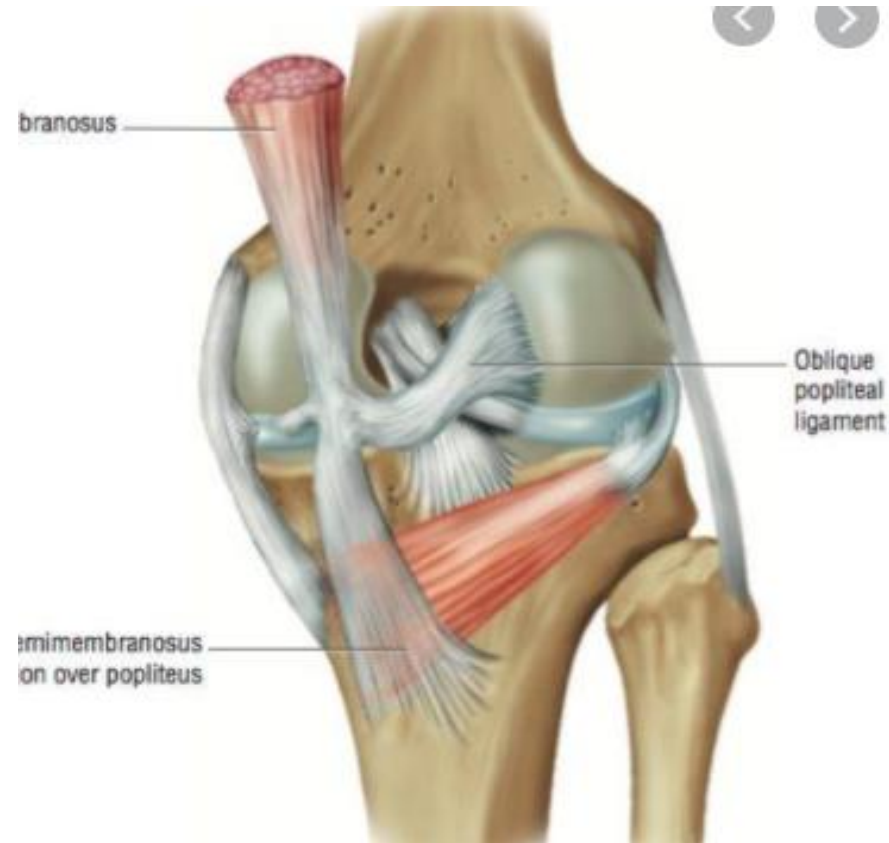- Metron: measurement

- Definition:
Refers to the measurement of angles created at human joints by the bones of the body.

Capsular ligaments of the knee

Posterior aspect

Oblique popliteal ligament

- Reinforces the posteromedial aspect of the capsule

- Tendinous expansion semimembranosus

- Attaches to the posterior part of medial tibial condyle to central part of posterior aspect of capsule

- Taut in full extension and checks hyperextension

- Restrains valgus and varus
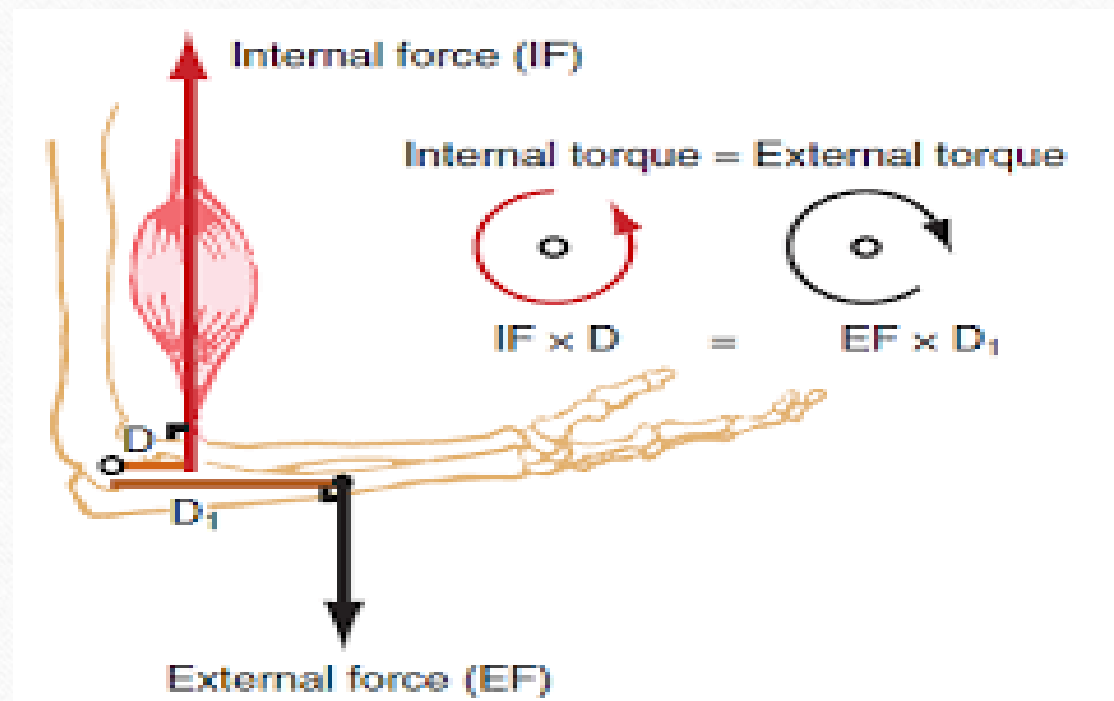
BIOMECHANICS OF HAND

Objectives

▶ Functions of hand

▶ Kinematics of Carpometacarpal joints

▶ Kinematics of Metacarpophalangeal joints

▶ Kinematics of Interphalangeal joints

▶ Arches of hand

Gait

Gait is defined as a translatory progression of body as a whole, produced by co-ordinated , rotatory movements of the body segments
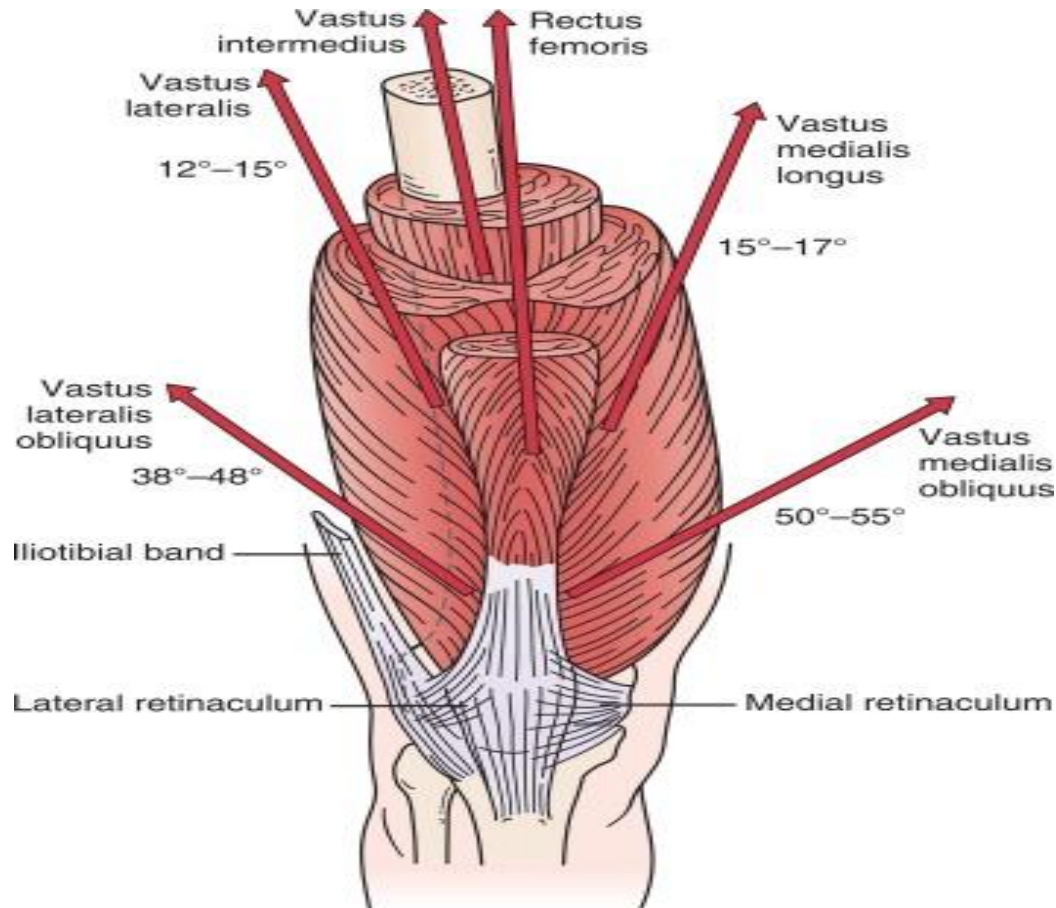
- Rhythmic- alternating propulsive and retropulsive motions of lower limbs

Kinetics of Knee

Internal force (IF)

Internal torque = External torque

$IF \times D \quad = \quad EF \times D_1$

External force (EF)

QUADRICEPS

Orientation of muscle fibers of Quadriceps

POSTURE

POSTURE???

POSITION, POSE, ATTITUDE, APPROACH

SENSORY ASSESSMENT OF HAND

- Also known as sensibility assessment of hand

- Starts with OBSERVATION of hand